LISTING OF CLAIMS

1. (previously presented) A system for inspecting a specimen, comprising:

an optical element arrangement for receiving light from a light generating device and imparting light toward said specimen and receiving a retro beam from said specimen;

a retro beam diversion element for diverting the retro beam from said optical element arrangement;

a multi-element sensing device for receiving and sensing retro beam position upon diversion from said optical arrangement, said multi-element sensing device comprising a plurality of linearly oriented sensing elements such that said retro beam is received by at least three of said sensing elements; and

a plurality of weighting elements corresponding to each of said plurality of sensing elements, wherein each of said weighting elements alters a characteristic of an electrical input of said corresponding sensing element based on a distance of said sensing element from a predetermined point on said multi-element device.

2. (original) The system of claim 1, wherein said optical element arrangement comprises an optical isolator.

3. (original) The system of claim 2, wherein said system further comprises:

a birefringent prism;

a lensing arrangement for receiving light energy from said birefringent prism;

at least one mirror, wherein one mirror receives light energy from said optical isolator; and

a half wave plate for receiving light energy from said one mirror and transmitting

light energy to said birefringent prism.

4. (original) The system of claim 2, wherein said optical element arrangement further comprises a dark field collection arrangement.

5. (original) The system of claim 1, wherein said optical element arrangement comprises an optical isolator, and said retro beam diversion element diverts light energy received from said optical isolator.

6. (original) The system of claim 1, wherein said retro beam diversion element comprises a beamsplitter.

7. (original) The system of claim 1, wherein said specimen comprises a surface, and wherein said sensing device senses diversion of said retro beam from an expected value and said system further comprises means for mapping a two dimensional x-y representation of the specimen surface based on signals received from said sensing device.

8. (original) The system of claim 1, wherein said optical element arrangement comprises a Nomarski Differential Interference Contrast sensor.

9. (original) The system of claim 8, wherein said Nomarski Differential Interference Contrast sensor divides light received in a single beam into a plurality of beams; and

wherein said optical element arrangement imparts a plurality of beams onto said specimen.

10. (original) The system of claim 9, wherein the plurality of beams comprises two beams and wherein the system scans the specimen in a direction substantially parallel to a line joining said two beams.

11. (original) The system of claim 1, wherein said sensing device comprises a one dimensional detector array.

12. (original) The system of claim 11, wherein said one dimensional detector array comprises one from the group including a CCD, a position sensitive detector, and a linear diode array.

13. (original) The system of claim 1, wherein said sensing device comprises:

a plurality of detector elements having exposed ends and predetermined spacing between said detector elements;

a plurality of electrical connections affixed to said exposed ends of said detector elements; and

a plurality of preamplifiers, wherein each detector element has a preamplifier associated therewith.

14. (original) The system of claim 13, further comprising:

a first plurality of weighting elements, each weighting element having a first predetermined weight associated therewith and electrically connected to a preamplifier;

a second plurality of weighting elements, said second plurality of weighting elements having a second predetermined weight associated therewith and electrically connected to a preamplifier wherein said first predetermined weight differs from said second predetermined weight; and

a plurality of summing amplifiers for receiving and combining weighted signals from predetermined weighting elements;

whereby each preamplifier is electrically connected to two weighting elements.

15. (original) The system of claim 14, further comprising:

programmable array logic for receiving signals from said summing amplifiers and predetermined power thresholds and selecting signals to be transmitted based on said

predetermined power thresholds; and

a multiplexer for receiving output selection signals from said programmable array logic and transmitting appropriate signals from said summing amplifiers.

16. (original) The system of claim 1, wherein said light generating device comprises a laser.

17. (original) The system of claim 1, wherein light is imparted toward said specimen and said retro beam is received in a orientation substantially normal to said specimen.

18-23. (canceled)

24. (currently amended) A system for detecting contours on a specimen surface, comprising:

application means for applying light energy to said specimen surface, said application means comprising a light generating device and an optical element arrangement for receiving light from said light generating device and imparting light toward said specimen surface; ~~and~~

detecting means ~~for surface variations having relative surface height variations of less than approximately 1000 nanometers and surface contours over areas larger than particles and scratches, said detecting means~~ comprising an optical relay for transmitting light energy received from said specimen surface and receiving a retro beam deflected therefrom and transmitting a retro beam toward a multi-element sensing device comprising a plurality of linearly oriented sensing elements such that said retro beam is received by at least three of said sensing elements; and

weighting means comprising a plurality of weighting elements corresponding to each of said plurality of linearly oriented sensing elements, wherein each of said weighting elements alters an electrical characteristic of said corresponding sensing

element based on a distance of said sensing element from a predetermined point on said multi-element device.

25. (canceled)

26. (original) The system of claim 24, further comprising:

an optical diversion element; and

sensing means for detecting movement of said retro beam; wherein said sensing means receive the retro beam diverted by said optical diversion element.

27. (original) The system of claim 26, wherein said sensing means comprise a linear array of sensors.

28. (original) The system of claim 25, further comprising: sensing means; and weighting and summing means for weighting and summing information received from said sensing means.

29. (original) The system of claim 28, further comprising programmable array logic and a multiplexer, wherein said programmable array logic determines signals based on predetermined threshold exceedance and initiates any determined signal via said multiplexer.

30. (original) The system of claim 24, wherein said detecting means have the ability to detect surface variations having relative surface height variations of less than approximately 1000 nanometers and greater than approximately 1.0 nanometer.

31. (original) The system of claim 30, wherein said detecting means have the ability to detect surface variations having relative surface height variations of less than approximately 1000 nanometers and greater than approximately 0.1 nanometer.

32-36. (canceled)

37. (previously presented) A method for inspecting a specimen, comprising:

providing light energy to said specimen via an arrangement of optical elements, thereby creating a retro beam reflected from said specimen;

passing said retro beam back through said arrangement of optical elements;

providing said retro beam to a multi-element sensing device, said retro beam having an expected deflection in a substantially predetermined direction and said multi-element sensing device comprising a plurality of linearly oriented sensing elements such that said retro beam is received by at least three of said sensing elements, each of said sensing elements producing an electrical output in response to sensing a portion of said retro beam; and

altering a characteristic of said electrical output according to a weighting element corresponding to a distance of said plurality of sensing elements from a predetermined point on said multi-element sensing device;

wherein said sensing device senses movement of the retro beam corresponding to anomalies on said specimen.

38. (original) The method of claim 37, wherein said optical element arrangement comprises:

a birefringent prism; and

a lensing arrangement, said lensing arrangement comprising a plurality of optical lenses.

39. (original) The method of claim 38, wherein said optical arrangement further comprises:

an optical isolator;

a half wave plate; and

at least one mirror.

40. (original) The method of claim 37, wherein said optical element arrangement comprises an optical isolator, and said retro beam providing step diverts light energy received from said optical isolator.

41. (original) The method of claim 37, wherein said retro beam providing step comprises diverting the retro beam via a beamsplitter.

42. (original) The method of claim 37, wherein said optical element arrangement comprises a bright field scanning Nomarski Differential Interference Contrast sensor.

43. (original) The method of claim 42, wherein said bright field scanning Nomarski Differential Interference Contrast sensor measures deviation along a direction substantially perpendicular to an optical lever.

44. (original) The method of claim 37, wherein said sensing device comprises:

a plurality of detector elements having exposed ends and predetermined spacing between said elements;

a plurality of electrical connections affixed to said exposed ends of said detector elements; and

a plurality of preamplifiers, wherein each element has a preamplifier associated therewith.

45. (original) The method of claim 37, wherein said optical element arrangement comprises a bright field scanning Nomarski Differential Interference Contrast sensor.

46. (original) The method of claim 45, wherein bright field scanning Nomarski Differential Interference Contrast sensor measures deviation along a direction substantially perpendicular to the orientation of beams created thereby.

47. (original) The method of claim 37, wherein said light energy is provided to said specimen in a substantially normal orientation.

48. (currently amended) A method for detecting contours on a specimen surface, comprising:

applying light energy to said specimen surface, said light application comprising generating light using a light generating device and receiving light from said light generating device and imparting light toward said specimen surface; ~~and~~

detecting surface variations ~~having relative surface height variations of less than approximately 1000 nanometers and surface contours over larger areas than particles and scratches~~, said detecting comprising transmitting light energy received from said specimen surface, receiving a retro beam deflected therefrom and transmitting said retro beam toward a multi-element sensing device comprising a plurality of linearly oriented sensing elements such that said retro beam is received by at least three of said sensing elements; and

altering an electrical characteristic of said corresponding sensing element based on a distance of said sensing element from a predetermined point on said multi-element device.

49. (canceled)

50. (previously presented) The method of claim 48, further comprising the steps of:

optically diverting light energy after said applying step; and

detecting movement of said retro beam by receiving the retro beam diverted by

said optical diversion step.

51-60. (canceled)

61. (previously presented) The method of claim 48, further comprising the steps of weighting and summing information received from said detecting step.

62. (previously presented) The system of claim 1, wherein said specimen moves relative to said optical element arrangement.

63. (previously presented) The method of claim 37, further comprising moving said specimen relative to said arrangement of optical elements.